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(54) Anti-theft device; padlocks

(57) Anti-theft device e.g. for portable objects such as bicycles comprises a lock (e.g. a padlock) comprising a casing 2, a first fastening member 3 connected to the casing, and a second electrically conductive flexible fastening member 6 connected to or within the casing, the second member forming part of an electrically operated alarm device in electrical connection with a source of electric power, preferably a battery 11, housed within the casing, the device causing an alarm signal e.g. a sound, to be given when the flexible fastening member is severed. As shown, member 6 is a cable made from thin plied strands of wire; it is attached to casing 2 at point 7 and has a catch 9 to be inserted into slot 4, after passing round object, to be secured in casing 2 by hoop 3. Figure 4 illustrates a circuit which includes a timer.

Device can be used to prevent entry to premises and to provide signal in distant location.

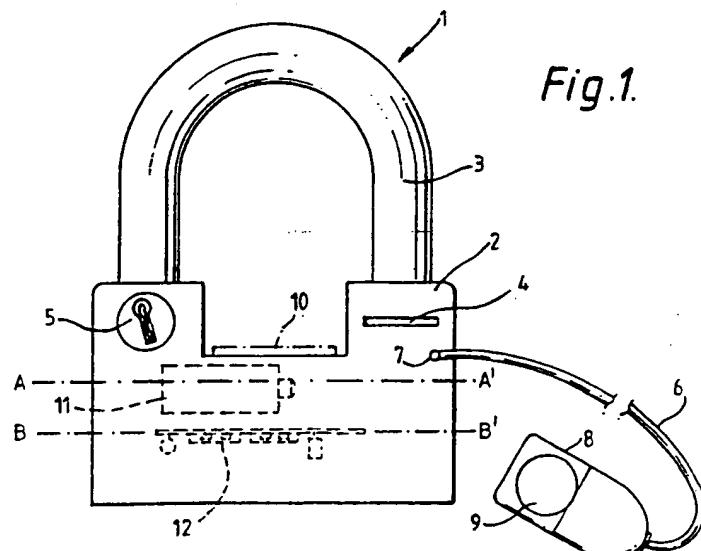
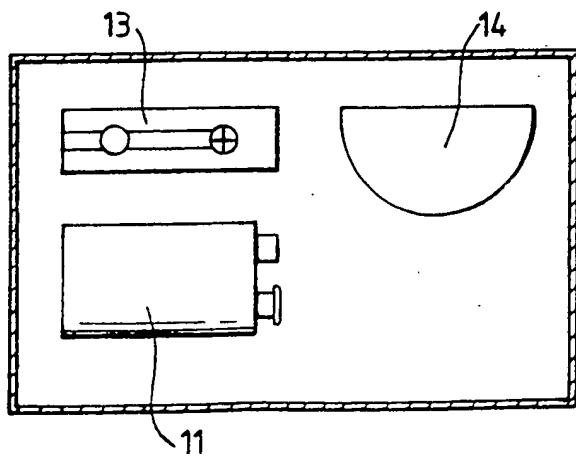
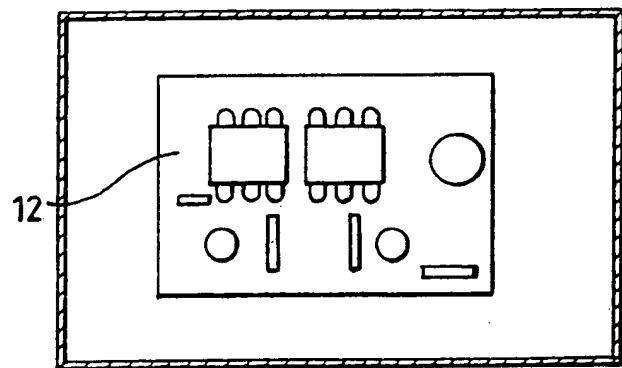
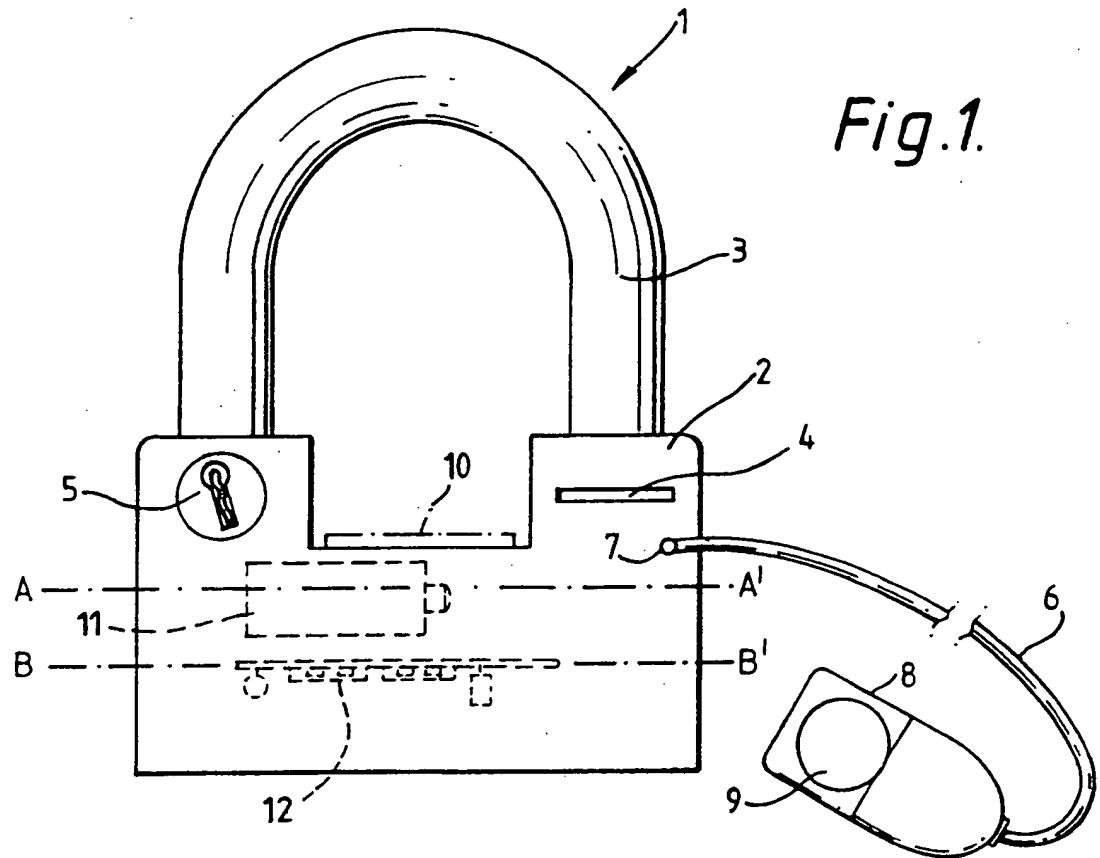


Fig.1.

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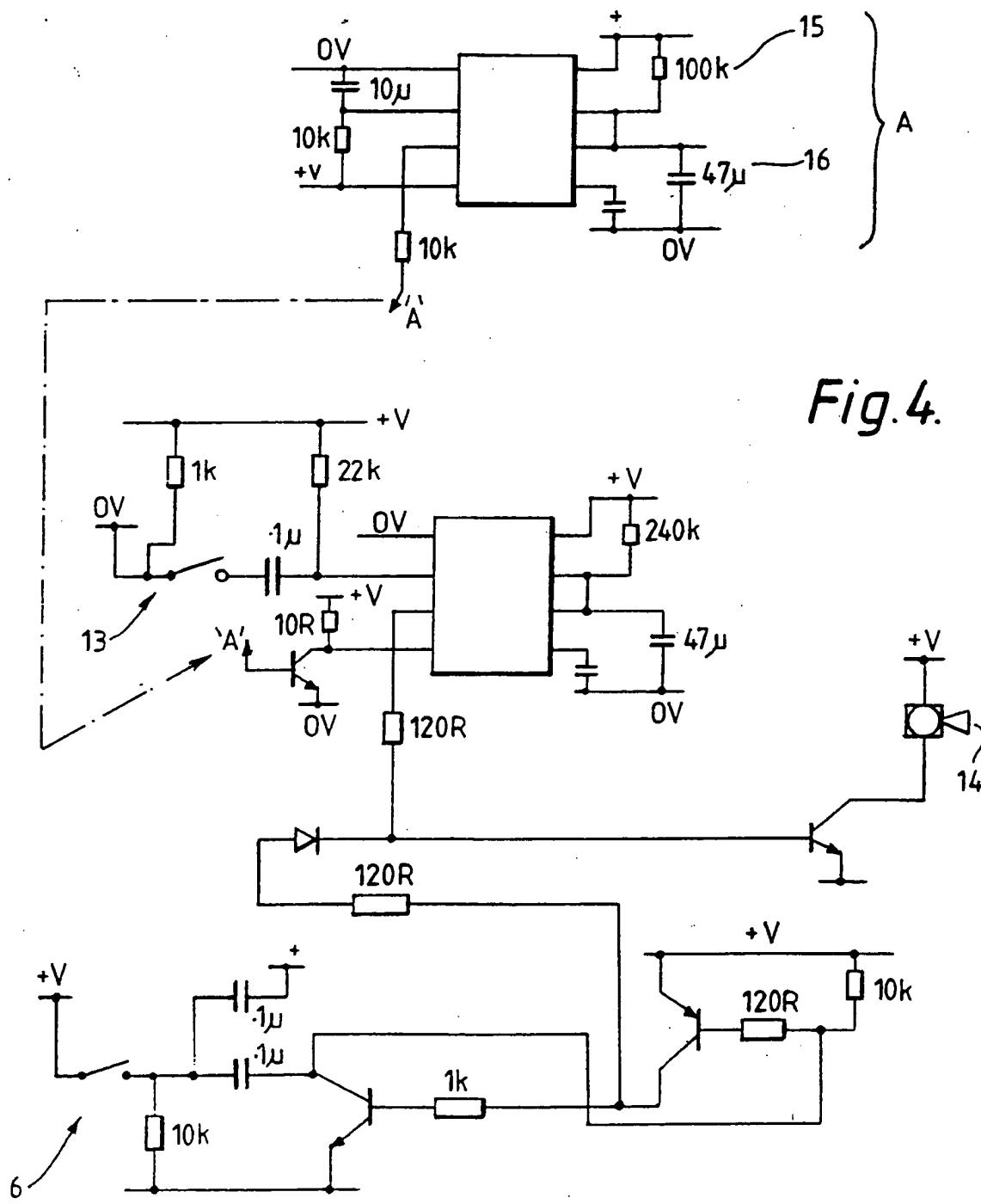


Fig. 4.

Anti-Theft Device

This invention relates to an anti-theft device for use
5 particularly but not exclusively on portable objects such
as bicycles.

Theft of bicycles takes place on a considerable scale and
in order to protect them when they are left unattended
10 owners generally chain them to some strong immovable
anchorage by means of a padlock and chain. In this way the
bicycles are provided with some measure of protection.
Unfortunately conventional padlocks and chains are not
strong enough to be really effective. Furthermore if they
15 are made strong enough they then become too cumbersome and
heavy to be carried conveniently on a bicycle. The present
invention is directed to an improved anti-theft device
which provides a higher degree of security compared with
conventional padlocks.

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This invention is illustrated but not restricted by the
following drawings in which;

Figure 1 is a front view of one preferred form of the
25 device.

Figure 2 is a plan view of a section of the device
taken along line AA' of Fig.1

30 Figure 3 is a plan view of a section of the device
taken along line BB' of Fig.1

Figure 4 shows schematically the electrical circuit
employed in the device shown in the above figures.

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With reference to the above figures, the device resembles a conventional padlock. The device, shown generally as numeral (1), comprises a casing (2) having a steel hasp (3) which is slides into two apertures (not shown) in the casing which is provided with a key hole (5). A flexible alarm cable (6) which can be of any convenient length e.g 0.5-1.0 m is attached at point (7) to the casing. The cable is made preferably from a number of thin plied strands of wire so that it is both strong and flexible although neither of these qualities are especially critical for the invention. The cable forms part of an alarm circuit illustrated in Fig.4. The free end of the cable terminates in a catch (8) provided with a hole (9) which is large enough to accommodate hasp (3) when catch (8) is inserted 15 into slot (4) in the casing (2). The latter is also provided with a removable cover (10) to permit access to its interior which houses a battery (11) and the electrical circuit board for the alarm (12) including a vibration sensor (13) and alarm buzzer (14).

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The electric circuit employed in the present device is illustrated in greater detail in figure 4. in which the various symbols have their customary meanings.

25 The construction of the present device is further clarified by a description of its operation. The hasp (3) of the device is placed round the article to be secured and the two arms are slid into corresponding apertures in the casing (2) of the lock. At the same time the alarm cable 30 (6) is also passed round a member of the article. Catch (9) is then inserted into slot (4) so that one of the arms of the hasp (3) passes through hole (9) in the catch (8). The hasp is then locked into position by means of a key inserted through key hole (5). In this way the article is 35 secured to the lock both by the hasp and the cable.

The alarm is then set. However in order to avoid accidental triggering of the alarm the circuit is provided with a timer shown generally as A in Fig. 4. The timer renders the alarm inactive for a convenient predetermined period for example fifteen seconds. Furthermore if at any subsequent time the alarm is activated by accidental vibration the alarm will sound for the pre-determined period after which it re-sets itself. However if the alarm cable is cut the alarm will continue to emit sound until either it is switched off or the battery runs down.

The timer employed is a standard article known to the trade as a 555 timer and if a different pre-determined time is required then this can be readily achieved by altering the values of components 15 and 16.

The figures show that in one aspect the device operates as a conventional padlock anti-theft device which provides the degree of protection normally expected of a padlock. However the device provides additional protection in that even if the padlock is forced a thief cannot remove the article which has been secured without cutting the alarm cable. When this happens the electrical device emits a piercing sound which draws attention to the fact that a theft is about to take place.

The present device can be modified in different ways to suit different purposes. For example the device can be used for the prevention of the breaking in and entry of premises. Under these circumstances the cutting of the alarm wire can result in an alarm signal, not necessarily a noise, being given in some distant location so as to alert security personnel.

Claims

1. An anti-theft device comprising a lock incorporating a casing, a first fastening member connected to the casing, and a second flexible electrically conductive fastening member connected to or within the casing, the second member forming part of an electrically operated alarm device, in electrical connection with a source of electric power, the device causing an alarm signal to be given when the flexible fastening member is severed.
2. An anti-theft device according to Claim 1 wherein the flexible fastening member is a cable made from thin plied strands of wire.
3. An anti-theft device according to either one of the preceding claims incorporating a battery as a source of electric power.
4. An anti-theft device according to any one of the preceding claims wherein the alarm circuit incorporates a timing device.
5. An anti-theft device where in the the lock is a padlock.
6. An anti-theft device according to any one of the preceding claims wherein the alarm signal is a sound emitted from the device.
7. Anti-theft devices as herein before described with particular reference to the drawings.